نموذج ثانوية أزهرية 1

الأزهر الشريف
قطاع المعاهد الأزهرية
الإدارة المركزية للامتحانات
وشئون الطلاب والخريجين

عدد الصفحات (١٦) صفحة
وعلى الطالب مسئولية المراجعة
والتأكد من ذلك قبل تسليم الكراسة

# الورقة الامتحانية

## لامتحان الشهادة الثانوية الأزهرية - الدور: الثاني

عام ١٤٣٧/ ١٤٣٨هـ - ٢٠١٦/ ٢٠١٧م

**المـــادة : الكيمياء "لغات"** **القسم: العلمي** **زمن الإجابة : ثلاث ساعات**

**المذهـــب** ..................................

| السؤال | الدرجة بالأرقام | اسـم المصحح ثلاثيًّا |
|---|---|---|
| الأول | | |
| الثاني | | |
| الثالث | | |
| الرابع | | |
| الخامس | | |
| السادس | | |
| السابع | | |
| الثامن | | |
| المجموع | | |

مجمع مطابع الأزهر الشريف

مجموع الدرجات (مكتوبًا بالحروف)
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اسـم المراجع العددي ثلاثيًّا:
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اسـم المراجع الفني ثلاثيًّا:
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الرقم السرى

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الرقم السرى

الأزهر الشريف _ قطاع المعاهد الازهرية
الإدارة المركزية للامتحانات وشئون الطلاب والخريجين

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نموذج ثانوية أزهرية 1

اسـم المعـهـد: ..................................

اسـم الطالب ولقبه: ..................................

المـــادة: الكيمياء "لغات" المذهـــب: ..................................

التـــاريخ: .................. رقم الجلوس: ..................

**تنبيه** على الطالب كتابة اسمه ولقبه كاملا و يحظر عليه كتابة أى علامة تدل عليه داخل ورقة الإجابة.

مجمع مطابع الأزهر الشريف

توقيع الملاحظين بالاسم : ١- .................. ٢- ..................

## تعليمات هامة

**عزيزي الطالب / عزيزتي الطالبة :-**

- اقرأ السؤال بعناية، وفكر فيه جيدًا قبل البدء في إجابته.
- أجب عن جميع الأسئلة ولا تترك أي سؤال دون إجابة .
- عند إجابتك على الأسئلة المقالية ، أجب فيما لا يزيد عن المساحة المحددة لكل سؤال .

مثال :

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- عند إجابتك على أسئلة الاختيار من متعدد ( إن وجدت ) ظلل الدائرة ذات الرمز الدال على الإجابة الصحيحة تظليلًا كاملًا لكل سؤال .

مثال : الإجابة الصحيحة (د) مثلًا

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| أ | ب | جـ | د (مظللة) |

- في حالة ما إذا أجبت إجابة خطأ ، ثم قمت بشطبها وأجبت إجابة صحيحة تحسب الإجابة صحيحة .
- فى حالة ما إذا أجبت إجابة صحيحة ، ثم قمت بشطبها وأجبت إجابة خطأ تحسب الإجابة خطأ.
- في حالة التظليل على أكثر من رمز ، تعتبر الإجابة خطأ.
- **ملحوظة : يفضل عدم تكرار الإجابة على الأسئلة.**
- زمن الامتحان (**ثلاث ساعات**).
- عدد صفحات الكراسة ( **١٦** ) صفحة.
- تأكد من ترقيم الأسئلة تصاعديًا ، ومن عدد صفحات كراستك، فهى مسئوليتك .
- الدرجة الكلية للامتحان (٦٠) درجة لكل سؤال (١٢) درجة .
- عدد الأسئلة خمسة كل سؤال مكون من ثلاث فقرات أ ، ب ، ج ولكل فقرة ٤ درجات.
- عند احتياج الطالب للإجابة على أي فقرة وذلك عند حدوث أي سبب يقتضي ذلك؛ يستخدم المسودة بآخر الورقة الامتحانية مع كتابة رقم السؤال والفقرة بوضوح، بشرط ألا تكون الإجابة مكررة.

هذا الجزء

غير مخصص للإجابة

# First question

**a) Choose the correct answer :**

1- ……………..is the unstable compound produced from the catalytic hydration of ethyne .

(a) Ethanol
(c) Vinyl alcohol
(b) Acetaldehyde
(d) Acetic acid

2- Acidified potassium dichromate solution with conc. sulphuric acid is used in detection of ………..

(a) $C_2H_5OH$
(c) $SO_2$
(b) $CH_3CHO$
(d) all the previous

3- By the addition of alkaline solution to an iron (III) solution, ……… precipitates.

(a) iron (III)hydroxide
(c) iron(III) oxide
(b) iron(II)oxide
(d) iron (II) hydroxide

4-The elements which have the more positive reduction potential are ………. agents.

(a) strong reducing
(c) weak oxidizing
(b) strong oxidizing
(d) all the previous

**b) Illustrate with chemical equations, the effect of temperature on each of:**

1- Magnesium bicarbonate .

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2- Iron (II) sulphate.

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3- Ethyl hydrogen sulphate .

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4- Ammonium cyanate.

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**c) Write the scientific reason of each :**

1- Difficultly of dissociation of hydrogen chloride into its elements according to the equation .

$H_{2(g)} + Cl_{2(g)} \rightleftharpoons 2\,HCl_{(g)}$ [ $k_c = 4.4 \times 10^{32}$ ]

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2- Molecules of oils and fats are called triglyceride.

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3- Fuel cells doesn't store energy .

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4- Titanium is used in dental implants and artificial joints .

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# Second question

**a)Write the scientific term of each of:**

1- The substance that attracts to the external magnetic field due to the presence of unpaired electrons.

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2- A solution in which the solute and the solvent in a dynamic equilibrium state.

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3- A process chemical corrosion of metals by environmental effects.

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4- Chemical compounds are considered as polymers of amino acids.

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**b) In the following equilibrium reaction:**

$$2SO_{2(9)} + O_{2\,(9)} \rightleftharpoons 2SO_{3(9)} + \text{heat}.$$

**Show effect of the following changes on the concentration of $SO_3$ gas.**

1- Decrease the vessel volume.

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2- Increasing temperature .

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3- Addition of more $SO_2$ gas .

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4- Addition of a catalyst.

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**c) Show, with chemical equations, how can you obtain each of:**

1- Disinfecting substance is used in the treatment of burns from halogenated aromatic compound.

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2- Magnetic iron oxide from iron (III) hydroxide .

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3- m-chloronitro benzene from benzene .

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4- Iodine from sodium iodide .

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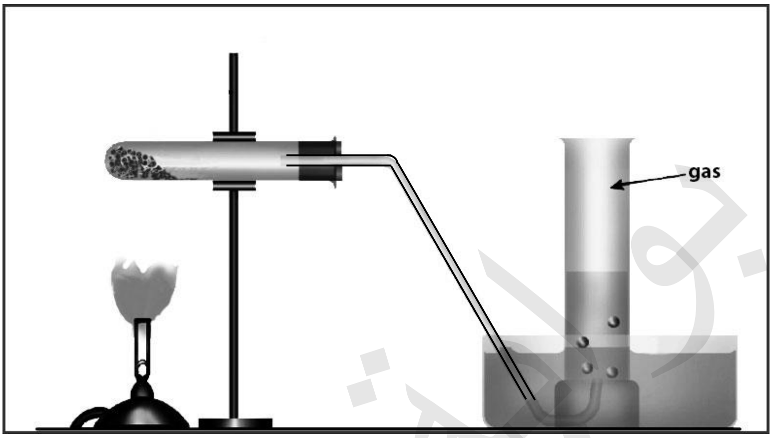
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# Third question

**a) The gas of swamps forms about 90% of natural gas found under the earth's crust .**




**The drawing represents preparation of this gas in the lab.**

**Answer the following.**

**1**- Write the chemical equation of preparation of this gas in the lab.

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2- How can you obtain the reducing agent of midrex furnace from this gas?

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3- Write the equation of heating this gas in absence of air .

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4- How can you obtain an aliphatic hydrocarbon, with general formal ($C_nH_{2n-2}$), from this gas ?

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**b) Prove with chemical equation and terms of the reaction each of:**

1- The oxygen of water produced through ester formation reaction is coming from acetic acid not ethyl alcohol .

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2- Iron magnetic oxide is consider as a mixed oxide.

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3- A weak acidic character of alcohols .

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4- Acetic acid contain a carboxylic group.

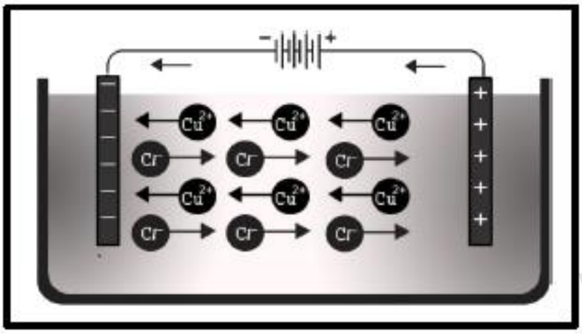
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**C) From the electrolytic cell for copper (II) chloride solution.**




**As shown in the drawing.**

**Answer the following :**

1- Write the anode reaction .

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2- Write the cathode reaction .

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3-Write the total cell reaction occurrs in the cell.

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4- Calculate emf , if you know that, the standard oxidation potential for chlorine and copper are (-1.36V) and (-0.34V) respectively.

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# Fourth question

**a) Put the suitable sign ( < or > or = ) in each of the following:**

1- Number of hydrogen moles required to saturate 1 mole of diphenyl are …….. number of hydrogen moles required to saturate on 1 mole of naphthalene

2- Number of the functional groups of glycerol are ………… number of the functional groups of pyrogallol

3- The boiling point of organic acids are ………… the boiling point the esters which have the same molecular mass.

4- The emf value of mercury cell is ……………. the of emf value of lithium ion battery.

**b) Arrange the following ascendingly.**

1- The following solutions according to $P^H$ taking into consideration that they have the same concentration

NaCl , HCl , $Na_2CO_3$ , $NH_4Cl$

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2-The following ions according to their magnetic moment :

$V^{2+}(3d^3)$ , $Fe^{3+}(3d^5)$ , $Cu^{2+}(3d^9)$ , $Ni^{2+}(3d^8)$

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**C) A 2.86gm of hydrated sodium carbonate salt was strongly heated until a constant mass of 1.06gm.**

**(Na= 23 , C= 12 , O= 16 , H=1)**

**find:**

1- Mass water crystallization.

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2- % water of crystallization.

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3- Number of molecules of water of crystallization in 1 mole of hydrated sodium carbonate.

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4- The molecular formula of the hydrated salt .

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# Fifth question

**A) Write the name and the chemical formula of the substance, which used in each of:**

1- Widening arteries in the treatment of heart.

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2- Catalyst during the preparation of sulphuric acid by the contact method.

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3- Dissolving agent of bauxite at extraction of aluminum.

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4- save anesthetic.

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**b) How can you detect the following compounds or radicals- write the chemical equations?**

1- $S_2O_3^{2-}$ .

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2- $Fe^{2+}$ .

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3- $PO_4^{3-}$ .

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4- Acetic acid.

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**c) What happen in each case , write the chemical equation if possible.**

1- The absence of the salt bridge in the galvanic cell .

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2- Dip a zinc-sheet in blue copper sulphate solution.

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3- Gradually addition of Iron(III) chlorid solution ( pale yellow colour) to ammonium thiocyanate solution (colourless).

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4. passing of normal hexane at high temperature on the surface of platinum as a catalyst.

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# Draft

# Draft